

National Institute of Standards and Technology
NIST SURF Program

Student Applicant Information

To be filled out by student applicant and included with completed institutional application
DO NOT SEND SEPARATELY – note this is for the Gaithersburg program

Name _____ Institution _____

Email address _____

Quickest contact (cell, apt/dorm phone) _____

Home Address _____

Current Class Standing (check only one)

☐ Freshman ☐ Sophomore ☐ Junior ☐ Senior ☐ 5th Year Senior

Applying to the Gaithersburg SURF Program in: *(Please Note: indicate 1st and 2nd choices)*
(click links below for further information)

CNST

☐

EL

☐

ITL

☐

MML/NCNR

☐

Materials Science

☐

Chemical/Biochemical
Sciences

PML

☐

Physics

☐

Electrical Engineering

Major (Minor) _____ Current Overall GPA _____

Do you require housing? ☐ Yes ☐ No (your gender) ☐ Male ☐ Female (for housing purposes only)
Students should expect to share a bedroom with one other student

Available for the entire 11-week SURF Program? (Thu 5/24/2012 – Thu 8/9/2012) ☐ Yes ☐ No
If no, give availability dates _____

Limited number of 9-week fellowships available (Thu 6/7/2012 – Thu 8/9/2012)

NOTE: All students must attend through the final date in August

Are you a U.S. Citizen? __ YES or __ NO

If not a U.S. Citizen, are you a Permanent U.S. Resident with a valid Green Card? __ YES or __ NO

Checklist:

- ☐ Resume
- ☐ Two letters of recommendation
- ☐ Transcripts (unofficial copies acceptable)
- ☐ Personal statement of commitment to participate and description of prioritized research interests
- ☐ Verification of U.S. citizenship or permanent legal residence, (e.g. copy of birth certificate, passport, or green card)

Submit to University contact for inclusion with institutional application – DO NOT SEND SEPARATELY

APPLICATION DEADLINE: February 15

Application Questions: Anita Sweigert, Phone: 301-975-4200, Fax: 301-975-3038

Website: <http://www.nist.gov/surfgaithersburg>

NOTE: This form contains collection of information requirements subject to the Paperwork Reduction Act. Notwithstanding any other provision of the law, no person is required to, nor shall any person be subject to a penalty for failure to comply with, a collection of information subject to the requirements of the Paperwork Reduction Act, unless that collection of information displays a currently valid OMB control number. The estimated response time for this application is 2 hours. The response time includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. OMB NO.: 0693-0042 Exp.Date: 10/31/2012

SURFING CNST – The Center for Nanoscale Science and Technology

Projects support nanotechnology from discovery to production by providing industry, academia, NIST, and other government agencies with access to world-class nanoscale measurement and fabrication methods and technology. Primary focus areas are: future electronics; nanofabrication and nanomanufacturing; and energy storage, transport, and conversion

Range of Research Activities: nanofabrication, atomic-scale characterization & manipulation, nanophotonics, nanomagnetism, nanoplasmonics, environmental TEM, nanoelectromechanical systems, thermoelectrics & photovoltaics, theory of nanostructures, and nanoscale control; [additional information...](#)

Relevant Academic Majors: physical sciences, engineering, materials science, physics, chemistry, biochemistry, mathematics, computer science

Selection Rate* (summer 2011): 75 applicants, 6 fellowships awarded (8%)

SURFING EL – Engineering Laboratory

Projects promote the development and dissemination of advanced manufacturing and construction technologies, guidelines, and services to the U.S. manufacturing and construction industries

Range of Research Activities: innovative fire protection, sustainable manufacturing; model-based engineering enterprise; intelligent manufacturing (automation, robotics, and equipment); net zero energy buildings; integrated and automated construction processes; building materials and systems; economic impacts; and disaster-resilient structures and communities; [additional information...](#)

Relevant Academic Majors: engineering including fire science, materials science, physics, chemistry, mathematics, statistics, computer science, and economics (electrical engineers should apply to PML)

Selection Rate* (summer 2011): 121 applicants, 38 fellowships awarded (31%)

SURFING ITL – Information Technology Laboratory

Projects provide hands-on experience in Applied Mathematics, Statistics, Software Testing, Computer Security, Information Access and Networking.

Range of Research Activities: human computer interaction, computer network modeling, pervasive computing, multimedia computing, information security, biometrics for computer access and security, cryptography, computer forensics, trustworthy software, software measurement science, software quality testing, digital data retrieval and preservation, bioinformatics, mathematical modeling, and image analysis; [additional information...](#)

Relevant Academic Majors: computer science, mathematics, statistics

Selection Rate* (summer 2011): 68 applicants, 39 acceptances, 19 fellowships awarded (28%)

SURFING MML/NCNR – Material Measurement Laboratory/NIST Center for Neutron Research

Applicants can choose from two SURF concentrations:

Materials Science – Projects focus on synthesis, measurements, and computational/theory/modeling of innovative materials and devices

Range of Research Activities: ceramics, metallurgy, polymers, condensed matter science, biomaterials, semiconductors, metals, nanoscale materials and measurements (includes activities at the NCNR)

Relevant Academic Majors: materials science, chemistry, biochemistry, physics, physical sciences, mathematics, computer science, engineering, biological sciences

Selection Rate* (summer 2011): 99 applicants, 31 fellowships awarded (31%)

Chemical and Biochemical Sciences – Projects address the nation's needs for measurements, standards, technology development, and reference data in the areas broadly encompassed by chemistry, biotechnology, and chemical engineering.

Range of Research Activities: from fundamental work in the composition, structure, properties, and processes of chemical, biological, environmental, and nanomaterials to the development and dissemination of certified reference materials, critically evaluated data, and advanced chemical and biochemical measurement paradigms

Relevant Academic Majors: chemistry, biochemistry, molecular biology, chemical engineering, computer science, environmental science, and to a lesser extent materials science, physics, mathematics, and other areas of engineering

Selection Rate* (summer 2011): 61 applicants, 19 fellowships awarded (31%)

[additional information...](#)

SURFING PML – Physical Measurement Laboratory

Applicants can choose from two SURF concentrations:

Physics - Projects provide hands-on research experience in physics fields of atomic, molecular, optical, radiation, chemical, and condensed matter physics.

Range of Research Activities: atomic and molecular effects in spectroscopy, surface effects, collision dynamics, and chemistry; radioactivity in environmental sensing, industrial dosimetry, and physical therapy; laser cooling and trapping; UV/optical/infrared light in detector development, tweezers, and quantum optics; QED effects on atomic structure.

Relevant Academic Majors: physics, computer science, electrical engineering, mechanical engineering, mathematics, nanoscience

Electrical Engineering - Projects involve developing new electronic devices and metrology to serve US industry's need for improved and standardized measurements.

Range of Research Activities: Electrical engineering and control of systems applications for power-efficient electronics, reliability, high power and smart grid, CMOS and nanoelectronics, dimensional metrology, and nano-interconnects. Also cross-disciplinary electronics applications such as large area electronics (including solar cells), molecular/organic electronics, bioelectronics, MEMS, and quantum-based devices related to electrical and mass standards.

Relevant Academic Majors: biochemistry, chemistry, computer science, electrical engineering, mechanical engineering, material science, mathematics, nanoscience, and physics.

Selection Rate* (summer 2011): 68 applicants, 30 fellowships awarded (44%)

[additional information...](#)

**The historical acceptance rate for the SURF Gaithersburg program is 33% (i.e., for every three student applicants, one student gets accepted). The number of student applicants each year will impact these statistics. Each Laboratory lists the acceptance rate for the students that applied to that laboratory as their 1st choice. Students may be considered by other Laboratories for projects, thus giving students more opportunities to receive an internship.*